

REMARKS

The present amendment is in response to the first Office Action, dated September 13, 2001, where the Examiner has rejected claims 21-53.

Applicants would like to express their gratitude for the Examiner's time, attention and courteous consideration of applicants' remarks during the telephonic interview conducted on December 14, 2001.

By the present amendment, claims 21, 26-30, 32, 34, 38, 39, 42, 44 and 46 have been amended, and claim 45 has been cancelled. Accordingly, claims 21-44 and 46-53 are pending in the present application. Reconsideration and allowance of pending claims 21-44 and 46-53 in view of the amendments and the following remarks are respectfully requested.

A. Non-Compliance of Information Disclosure Statement with 37 CFR 1.97(d) and 37 CFR 1.98(a)(2)

The Examiner has not considered the Information Disclosure Statement filed April 24, 2001, for failure to comply with 37 CFR 1.97(d), because it lacks a statement as specified in 37 CFR 1.97(e). Applicants respectfully submit that the Information Disclosure Statement was filed contemporaneously with the present application on April 24, 2001 and, thus, applicants have fully complied with 37 CFR 1.97(b). It should be noted that 37 CFR 1.97(a) requires applicants to comply with only one of paragraphs (b), (c) or (d). Further, paragraph (b)(1) requires that the Information Disclosure Statement be filed within three (3) months of the national filing date, i.e. within three (3) months of April 24, 2001. Accordingly, by filing the Information Disclosure Statement contemporaneously with the present application, applicants respectfully submit that they have satisfied the requirements of 37 CFR 1.97(b)(1) and respectfully request that the Examiner's objection under 37 CFR 1.97(d) be withdrawn.

In addition, the Examiner has not considered the Information Disclosure Statement filed April 24, 2001, for failure to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent document and each publication or that portion which caused it to be listed. In response, applicants have included a legible copy of each U.S. and foreign patent document and each publication or that portion which caused it to be listed.

Accordingly, applicants respectfully submit that the Examiner's objection has been overcome and respectfully request that the enclosed references be considered.

B. Objection to the Abstract

The Examiner has objected to the abstract, because the first sentence is not complete. In response, applicants have amended the abstract to delete the first sentence and insert a portion of the first sentence in the third sentence of the abstract. Accordingly, applicants respectfully submit that the Examiner's objection has been overcome.

C. Objection to the Specification

The Examiner has objected to claims 26-28, 29, 32 and 45 for including the term "computer network", because it is not mentioned in the specification. The Examiner has also objected to claims 27 and 28 for including the term "internet-based network", because it is not mentioned in the specification. In addition, the Examiner has also objected to the use of the term "cellular telephone network" in the claims, because it is not mentioned in the specification.

Applicants respectfully disagree with the Examiner's objection, because one of ordinary skill in the art would understand that a network can be a computer network, an internet-based network and/or a cellular telephone network. Further, as discussed in the next section, the Federal Circuit has stated that "an inventor is not required to describe every detail of his invention." Applicants respectfully submit that applicants are not required to state details that are

clearly within the knowledge of one of ordinary skill in the art. However, in order to expedite the prosecution of the present application, applicants have amended claims 26-30, 32, 42 and 44 to overcome the Examiner's objection.

D. Rejection of Claims 21-53 under 35 UCS § 112, ¶ 2

The Examiner has rejected claim 39 under 35 UCS § 112, ¶ 2, stating that the term "substantially imperceptible" is indefinite. Applicants respectfully disagree with the Examiner's rejection, however, in order to expedite the prosecution of the present application, applicants have replaced the words "substantially imperceptible" with the words --perceptually indistinguishable-- in claim 39. Accordingly, applicants respectfully submit that the Examiner's rejection has been overcome.

The Examiner has further rejected claims 21-53 under 35 UCS § 112, ¶ 2, as being incomplete for omitting the process of segmenting signals that is relied upon by claims 21, 34 and 38. The Examiner has proceeded to examine the claims base on the understanding that segment determinations are made on the basis of criteria that would be apparent to a person of ordinary skill. Applicants respectfully submit that they are in total agreement with the Examiner's latter statement and disagreement with the Examiner's former statement. In other words, applicants respectfully submit that one of ordinary skill in the art would understand the process of breaking speech into pieces, which are then used to perform speech coding.

It is axiomatic that "an inventor is not required to describe every detail of his invention." Ven-Tel, Inc. v. Hayes Microcomputer Products, Inc., 982 F.2d 1527, 1534 (Fed. Cir. 1992). Further, "an applicant's disclosure obligation varies according to the art to which the invention pertains." Id. As explained by the Federal Circuit, the written description requirement is met if the description clearly allow persons of ordinary skill in the art to recognize that the applicant has

invented what is claimed, but the applicant "does not have to describe exactly the subject matter claimed." Id. at 1533.

Accordingly, applicants respectfully request that the Examiner's rejection of claims 21-53 35 UCS § 112, ¶ 2, be withdrawn.

E. Rejection of Claims 21 under the Judicially Created Doctrine of Double Patenting

The Examiner has rejected claim 21 under the judicially created doctrine of double patenting as being unpatentable over claims 1 of U.S. Patent No. 6,256,606.

Along with the present amendment, applicants have submitted a terminal disclaimer to overcome the Examiner's rejection under the judicially created doctrine of double patenting with respect to claim 1 of U.S. Patent No. 6,256,606. Applicants respectfully submit that the enclosed terminal disclaimer overcomes the Examiner's rejection and places claim 21 in a condition for allowance.

F. Rejection of Claims 21-53 under 35 UCS § 103(a)

The Examiner has rejected independent claims 21, 34, 38 and 46 under 35 UCS § 103(a), as being unpatentable over Rapeli (U.S. Patent No. 6,128,032) (the "'032 patent").

As discussed during the telephonic interview of December 14, 2001, applicants respectfully disagree with the Examiner's rejection, because the '032 patent does not remotely suggest "the identification of the absence of a substantially speech-like characteristic of the segment of the speech signal independent of the speech coding mode applied before the segment."

However, only for the purpose of expediting the prosecution of the present application, applicants have amended claim 21 to state: "the identification of the absence of a substantially speech-like characteristic of the segment of the speech signal independent of the speech coding

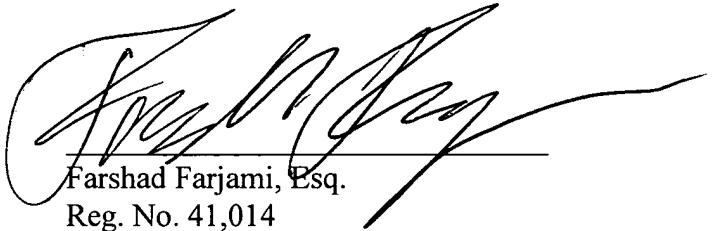
mode applied immediately before the segment.” In addition, independent claims 34, 38 and 46 have been amended in a similar fashion.

Accordingly, it is respectfully submitted that independent claims 21, 34, 38 and 46, and their respective dependent claims are in condition for allowance.

G. Conclusion

For all the foregoing reasons, an early allowance and issuance of claims 21-44 and 46-53 pending in the present application is respectfully requested. The Examiner is invited to contact the undersigned for any questions.

Respectfully Submitted;
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CERTIFICATE OF MAILING

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Name



Signature

Marked-Up Version of the Amended Claims

21. (Amended) A communication device having a multi-rate speech coder that performs silence description coding of a speech signal having varying characteristics, comprising:

a voice activity detection circuit that is capable of identifying a substantially speech-like characteristic of a segment of the speech signal; and

a processing circuit communicatively coupled to the voice activity detection circuit, the processing circuit being capable of selectively applying one of a plurality of coding modes to the segment of the speech signal,

wherein the plurality of coding modes comprises a plurality of speech coding modes and a silence description coding mode,

wherein the processing circuit selects the silence description coding mode upon the identification of the absence of a substantially speech-like characteristic of the segment of the speech signal independent of the speech coding mode applied immediately before the segment.

26. (Amended) The communication device of claim 21, wherein the communication device comprises a ~~computer~~ network-based communication device.

27. (Amended) The communication device of claim 26, wherein the ~~computer~~ network-based communication device is capable of communicating via ~~an internet-based~~ a network.

28. (Amended) The communication device of claim 26, wherein the ~~computer~~ network-based communication device is capable of transmitting an encoded speech signal via ~~the internet-based~~ a network.

29. (Amended) The communication device of claim 21, wherein the communication device is capable of communicating via a ~~computer~~ wireless network ~~and telephone network~~.

30. (Amended) The communication device of claim 29, wherein the ~~telephone~~ wireless network ~~is a cellular telephone network~~ includes a communication cell.

32. (Amended) The communication device of claim 21, wherein the communication device comprises a network interface device that is capable of interfacing a ~~cellular telephone to~~ a computer wireless network.

34. (Amended) A method of coding a speech signal, comprising:
coding ~~the~~ a first segment of the speech signal using a speech coding mode selected from a plurality of speech coding modes; and

coding ~~the~~ a second segment of the speech signal using a silence description coding mode independent of the speech coding mode used to code the first segment of the speech signal immediately before the second segment.

38. (Amended) A communication system, comprising:
a coder;
a decoder; and
a communication network selectively interconnecting the coder and the decoder;
wherein the coder comprises a voice activity detector, a processor coupled with the voice activity detector, and a transmitter coupled with the processor,

wherein the voice activity detector receives first and second segments of a speech signal and identifies a substantially speech-like characteristic of the first ~~and second~~ segments and an absence of a substantially speech-like characteristic of the second segment of the speech signal,

wherein the processor selectively applies one of a plurality of coding modes to the first and second segments, the plurality of coding modes comprises a plurality of speech coding modes and a silence coding mode,

wherein the processor applies the silence description coding mode to the second segment of the speech signal ~~after the voice activity detector identifies an absence of a substantially speech-like characteristic of the second segment of the speech signal~~ independent of the speech coding mode applied to the first segment of the speech signal immediately before the second segment.

39. (Amended) The communication system of claim 38, wherein the decoder generates a reproduced speech signal that is ~~substantially imperceptible~~ perceptually indistinguishable from the first and second segments of the speech signal.

42. (Amended) The communication system of claim 39, wherein the communication network comprises a ~~computer~~ wireless network.

44. (Amended) The communication system of claim 42, wherein the communication network further comprises a wireline communication network connected with the ~~computer~~ wireless network.

46. (Amended) A multi-rate codec that encodes a first speech signal having a first plurality of segments and receives a second speech signal having a second plurality of encoded segments, comprising:

a multi-rate coder, wherein the multi-rate coder is capable of coding each of the segments of the first speech signal via one of a plurality of speech coding modes and a silence description coding mode, wherein the multi-rate coder selects the silence description mode when an absence

of a substantially speech-like characteristic is detected in a segment independent of the speech coding mode applied to an immediately earlier segment; and

a multi-rate decoder operatively coupled to the multi-rate coder, wherein the multi-rate decoder is capable of receiving and decoding the second plurality of encoded segments, wherein the multi-rate decoder selectively adds comfort noise to the decoded segment.

Marked-Up Version of the Amended Abstract

~~Silence description coding for multi-rate speech coding systems that employ discontinued transmission.~~ Speech coding systems include multi-rate speech codecs having an encoder and a decoder. ~~The~~ Silence description coding for multi-rate speech coding systems that employ discontinued transmission is performed in either the encoder or the decoder of the multi-rate speech codec. It may also be performed in a distributed manner wherein it is performed partially in the encoder and partially in the decoder. The silence description coding is performed on a speech signal having a substantially non-speech-like characteristic. Voice activity detection classifies the speech signal as being either substantially speech-like or substantially non-speech-like. The silence description coding is selected from a plurality of coding modes. In certain embodiments of the invention, the silence description coding is a source coding mode that operates at a bit rate that fits within a bit rate budget as determined by all of the available source coding modes within the plurality of coding modes. The silence description coding is also accompanied with signaling coding and channel coding of the speech signal. Error checking is performed using an unused portion of a bandwidth of the multi-rate speech codec's bit rate. This error checking involves majority voting in certain embodiments of the invention.